GLACIAL DEPOSITS OF WISCONSIN

UNIVERSITY OF WISCONSIN - EXTENSION
Geological and Natural History Survey
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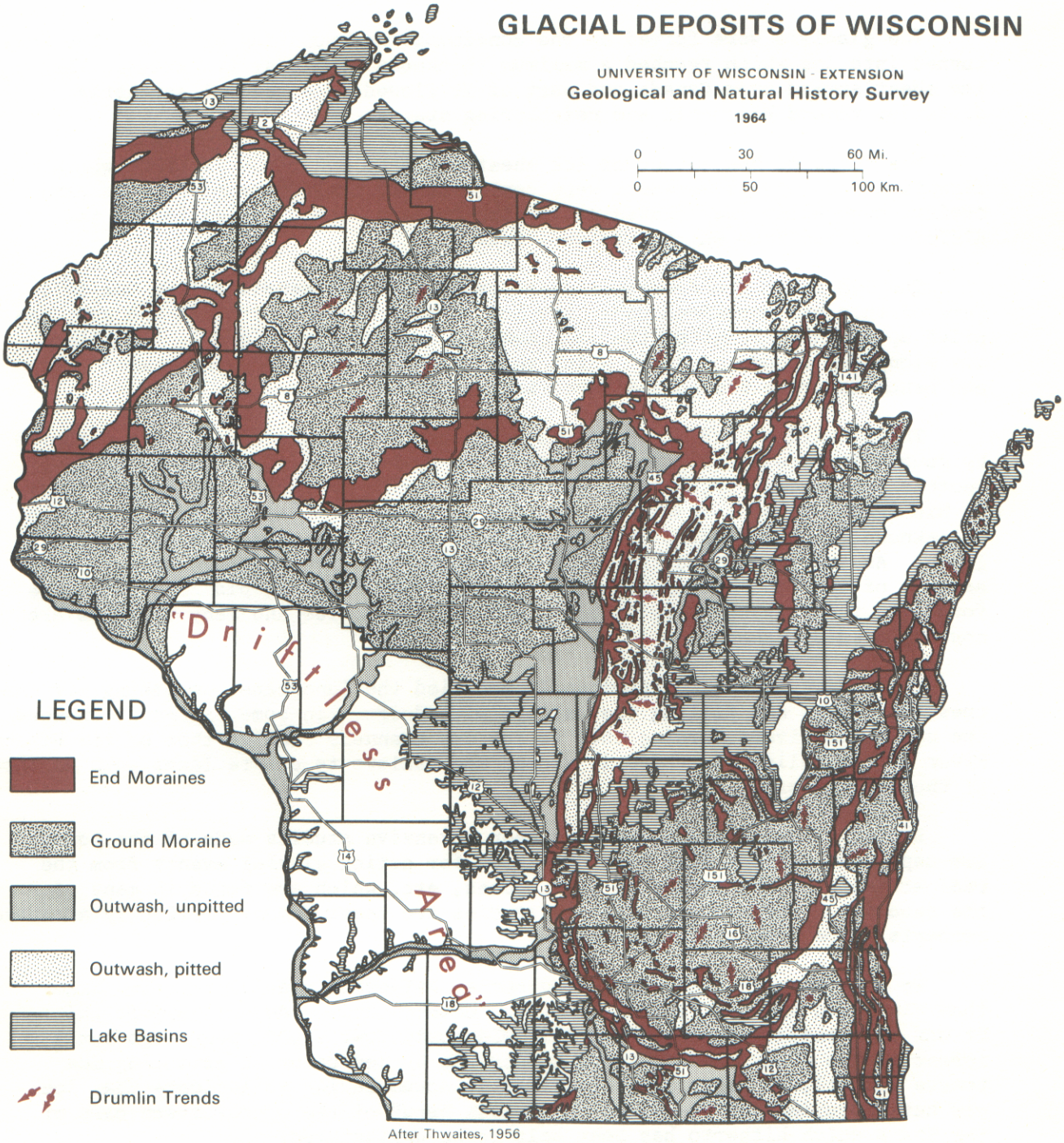
0 30 60 Mi.
0 50 100 Km.



After Thwaites, 1956

SHORT HISTORY OF THE ICE AGE IN WISCONSIN

The Pleistocene Epoch or "Ice Age" began about 1,000,000 years ago which, in terms of geologic time, is a very short time ago. There were four separate glacial advances in the Pleistocene each followed by an inter-glacial period when the ice receded. The fourth glacial stage is called the Wisconsin Stage because it was in this State that it was first studied in detail.

The glaciers were formed by the continuous accumulation of snow. The snow turned into ice which reached a maximum thickness of almost two miles. The ice sheet spread over Canada and part of it flowed in a general southerly direction toward Wisconsin and neighboring states.

The front of the advancing ice sheet had many tongues or "lobes" whose direction and rate of movement were controlled by the topography of the land surface over which they flowed and by the rates of ice accumulation in the different areas from which they were fed.

The ice sheet transported a great amount of rock debris called "drift". Some of this was deposited under the ice to form "ground moraine" and some was piled up at the margins of the ice lobes to form "end moraines". "Drumlins" are elongated mounds of drift which were molded by the ice passing over them and hence indicate the direction of ice movement.

The pattern of end moraines, in red, shows the position that was occupied by four major ice lobes. One lobe advanced down the basin of Lake Michigan, another down Green Bay, a third down Lake Superior and over the northern peninsula of Michigan and yet a fourth entered the state from the northwest corner. The well-known "Kettle Moraine" was formed between the Lake Michigan and Green Bay lobes. As the ice melted the drift was reworked by the running water. Large amounts of sand and gravel were deposited to form "outwash plains"; pits were formed in the outwash where buried blocks of ice melted and many of these are now occupied by lakes.

The action of the ice profoundly modified the landscape, smoothing off the crests of hills and filling the valleys with drift. In some places it changed the course of rivers forcing them to cut new channels such as that of the Wisconsin River at the Dells; elsewhere it dammed the valleys to create lakes such as those of the Madison area.

During recent years there have been intensive studies made of the polar ice caps, and methods have been developed for dating glacial events from the radioactivity of the carbon in wood, bones, etc. which are found in many of the deposits. The results of these studies are causing many previously accepted concepts to be changed or challenged.

We once thought that there were rather extensive glacial deposits older than Wisconsin age in the State, but age determinations do not support this. It was also thought that the ice left Wisconsin some 20,000 years ago but a forest at Two Creeks in Manitowoc County was buried under an advancing ice tongue only 11,000 years ago. Evidence is accumulating to indicate that ice may have occupied the so-called "Driftless Area" of the southwestern part of the State which hitherto has been held to be unglaciated.

Most scientists now believe that the cause of the Pleistocene "Ice Age" was due to variations in the solar energy reaching the earth, but how these may have occurred is still a matter of conjecture. We are still in the Ice Age and it is anybody's guess whether future millenia will see the melting of the ice caps and the slow drowning of our coastal cities, or the regrowth and once more the inexorable advance of the glaciers.

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